

CLAIMS

1. A computer-readable medium having computer-executable instructions that enable remote execution of a command, the instructions comprising:

receiving a command line instruction including a remote command, the remote command identifying a task of execution to be performed on a remote system;

initiating a session with at least two remote systems; and

causing the remote command to be executed on each of the at least two remote systems.

2. The computer-readable medium recited in claim 1 wherein the session comprises a connection between a system on which the command line instruction is received.

3. The computer-readable medium recited in claim 1, wherein the session is initiated as a persistent session that is available to perform subsequent remote commands.

4. The computer-readable medium recited in claim 3, further comprising receiving a second command line instruction including a second remote command and causing the second remote command to be executed using the persistent session.

5. The computer-readable medium recited in claim 1, wherein the remote system comprises a remote computing device.

1 6. The computer-readable medium recited in claim 1, wherein the
2 remote system comprises an alternate process.

3 7. The computer-readable medium recited in claim 1, wherein the
4 remote system comprises an alternate application domain.

5 8. The computer-readable medium recited in claim 1, wherein causing
6 the remote command to be executed comprises delegating the step of causing the
7 remote command to be executed to a controller associated with a subset of the at
8 least two remote systems.

9 9. The computer-readable medium recited in claim 8, wherein each of
10 the at least two remote systems comprises a node in a hierarchical network
11 topology and the controller holds a position in the hierarchy between the subset of
12 the at least two remote systems and the system receiving the command line
13 instruction.

14 10. The computer-readable medium recited in claim 1, wherein the
15 remote command is concurrently executed on each of the at least two remote
16 systems.

17 11. The computer-readable medium recited in claim 1, further
18 comprising aggregating results of executing each remote command.

19 12. The computer-readable medium recited in claim 11, wherein the
20 results are aggregated into an array.
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1 **13.** The computer-readable medium recited in claim 11, wherein the
2 results include information that identifies on which remote system the results
3 originated.
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1 **14.** A computer-executable method of remote execution of a command,
2 comprising:

3 receiving at a local system a first command line that identifies a remote
4 system;

5 causing a session to be created between the local system and the remote
6 system, the session including a connection to a remote process resident on the
7 remote system;

8 causing a remote command to be executed in the remote process; and

9 storing results of the remote command in an environment variable
10 associated with the session.
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12 **15.** The computer-executable method recited in claim 14, further
13 comprising causing a second remote command to be executed in the remote
14 process and storing results of the second remote command in the environment
15 variable.
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17 **16.** The computer-executable method recited in claim 14, wherein
18 causing the session to be created comprises creating the environment variable and
19 associating the session to the environment variable.

20 **17.** The computer-executable method recited in claim 16, wherein the
21 first command line further comprises a parameter that identifies the environment
22 variable associated with the session.

23 **18.** The computer-executable method recited in claim 14, wherein the
24 command line further identifies a plurality of remote systems.
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1 **19.** The computer-executable method recited in claim 14, wherein the
2 command line further identifies credentials for use in creating the session between
3 the local system and the remote system.

4 **20.** A computer-readable medium having computer-executable
5 instructions for performing the method recited in claim 14.
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1 **21.** A computer-readable medium having computer-executable
2 components, comprising:

3 a session manager configured to create and maintain sessions between a
4 local system and one or more remote systems, each session being capable of
5 hosting a plurality of connections between the local system and remote systems;

6 an aggregator configured to receive results of remote execution of a
7 command, the results being each associated with a remote system, the aggregator
8 being further configured to aggregate the results into an array; and

9 a throttler configured to, upon request, limit a number of active connections
10 within each session.

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12 **22.** The computer-readable medium of claim 21, wherein each of the
13 results in the array is associated with the remote system on which the results
14 originated.

15 **23.** The computer-readable medium of claim 21, wherein the aggregator
16 is further configured to make the results available in a disaggregated fashion.

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18 **24.** The computer-readable medium recited in claim 21, wherein the
19 aggregator is further configured to aggregate the results into an environment
20 variable associated with a session created by the session manager.

21 **25.** The computer-readable medium recited in claim 21, wherein the
22 throttler is further configured to interact with interact with other performance-
23 based mechanisms to regulate a performance impact of a remote command
24 execution.
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1 **26.** The computer-readable medium recited in claim 25, wherein the
2 other performance-based mechanisms comprises a Quality Of Service mechanism.

3 **27.** The computer-readable medium recited in claim 25, wherein the
4 other performance-based mechanisms comprises an agent on a remote system that
5 is configured to regulate an impact on resources on the remote system.

6 **28.** The computer-readable medium recited in claim 21, further
7 comprising a core engine configured to manage a flow of information among each
8 of the several components.

9 **29.** The computer-readable medium recited in claim 28, wherein the
10 core engine is further configured to delegate a task of initiating a session to
11 another system in a hierarchy of remote systems.

12 **30.** The computer-readable medium recited in claim 21, wherein the
13 remote system comprises a remote computing device.

14 **31.** The computer-readable medium recited in claim 21, wherein the
15 remote system comprises an alternate process.

16 **32.** The computer-readable medium recited in claim 21, wherein the
17 remote system comprises an alternate application domain.
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